REMARKS

Claims 1-36, all of the claims pending in the application, stand rejected. Moreover, claims 11, 12, 23, 24, 30, and 31 are objected to because of informalities. Claims 12, 24, and 31 are cancelled herein without prejudice or disclaimer. Claims 1-36 are amended herein. Moreover, no new matter is being added. Additionally, the specification and drawings are objected to. Applicants respectfully traverse these objections and rejections based on the following discussion.

I.   The Objections to the Specification

The specification is objected to because the Office Action indicates that all of the known prior art contents from the "DETAILED DESCRIPTION OF THE INVENTION" section must be moved to the "Description of Related Art" sub-section of the "BACKGROUND OF THE INVENTION" section. However, the Applicants have reviewed the specification and cannot locate any listings of prior art references in the "DETAILED DESCRIPTION OF THE INVENTION" section. Further clarification from the Examiner is respectfully requested.

Additionally, the title is objected to as being not descriptive. As such, the Applicants have amended the title in a manner similar to what is suggested in the Office Action. Therefore, the Examiner is respectfully requested to reconsider and withdraw the objections to the specification.

II.   The Objections to the Drawings

The drawings are objected to by the Official Draftsperson because Figures 7 and 9-16 contain characters, lines, numbers, and/or letters which are not uniformly thick and defined. As

such, the Applicants hereby are submitting corrected drawings for Figures 7 and 9-16 to provide more clarity to the characters, lines, numbers, and/or letters contained therein. Additionally, the Office Action indicates that Figure 17 should be designated by a legend such as --Prior Art--. However, the Applicants traverse this objection because Figure 17 provides a computer system that implements the novel claimed invention. As such, the computer system in Figure 17 should be interpreted in light of the specification, which clearly provides that the computer system illustrated in Figure 17 implements the claimed invention's novel method for the allocation of bandwidth to dataflows. As such, Figure 17 should not be considered as Prior Art for the purposes of describing the invention, and in view of the foregoing, the Applicants respectfully request that the Examiner reconsider and withdraw the objections to the drawings.

III. The 35 U.S.C. §112, First Paragraph, Rejection

Claims 1, 2, 13, 14, 25 and 26 stand rejected under 35 U.S.C. §112, first paragraph. As such, the Applicants have amended claims 1, 2, 13, 14, 25, and 26 to place the terms in proper form by providing proper antecedent basis for the claimed language. Moreover, the term "buckets" is clearly defined on page 6, second full paragraph, of the specification. Nonetheless, claims 1, 13, and 25 have been amended to provide further clarification of what the term "buckets" refers to. Therefore, the Examiner is respectfully requested to reconsider and withdraw the rejections to the claims.

IV. The Objections to the Claims

Claims 11, 12, 23, 24, 30, and 31 stand objected to because of informalities. As such, the Applicants have amended the claims to place them in proper form. Therefore, the Examiner is

respectfully requested to reconsider and withdraw the objections to the claims.

V.   The Prior Art Rejections

Claims 1, 13 and 25 stand rejected under 35 U.S.C. §103(a) as being unpatentable over

Amaral et al. (U.S. Patent No. 6,088,360), hereinafter referred to as "Amaral" in view of Bonomi

et al. (U.S. Patent No. 6,396,834), hereinafter referred to as "Bonomi". Claims 2-4, 8-12, 20-24,

and 32-36 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Amaral, Bonomi

in view of "Official Notice". Claims 5-7, 17-19 and 29-31 stand rejected under 35 U.S.C.

§103(a) as being unpatentable over Amaral and Bonomi in view of Garcia-Luna-Aceves et al.

(U.S. Patent Publication No. US2002/0097726), hereinafter referred to as "Garcia". Applicants

respectfully traverse these rejections based on the following discussion.

Graham v. John Deere Co., 383 U.S. 1, 86 S.Ct. 684, 15 L.Ed.2d 545, U.S.P.Q. 459

(1966) provides the correct factual inquiries which establish a background for determining

obviousness under 35 U.S.C. §103(a). However, the cited tests clearly indicate that the claimed

invention is unobvious in light of Amaral, Bonomi, Garcia, and the purported teachings given in

the Official Notice.

First, the scope and content of Amaral, Bonomi, and Garcia are each clearly different

from the claimed invention. Amaral teaches a video multiplexer that incorporates a dynamic rate

control feature. MPEG encoded video signals for each channel are stored in a first-in first-out

(FIFO) buffer. A packetizer for each channel detects the level in the FIFO buffer and issues a

request signal to the video multiplexer that the channel desires to transmit the video signals on

the network. The bandwidth allocation for a channel is either preselected by the video provider

or automatically selected, and tokens are issued by a counter associated with each channel to give

greater network access to those channels which require a higher bandwidth. A token multiplier detects the bandwidth needs of the various channels by detecting the rate that the FIFO buffer is being filled and automatically multiplies the number of consecutive packets which the packetizer may transmit over the multiplexer during a single grant. This is different and wholly unique from the bandwidth allocation technique that adaptively adjusts the number of buckets dependent upon the number of active dataflows of the claimed invention.

Bonomi teaches a flexible scheduler in an ATM switch. The scheduler enables each connection to be served fairly according to associated quality of service parameters, while enabling several other features. A connection can be shaped while minimizing additional memory and processing requirements. Specifically, the conformance time of cells of a connection need not be stored when significant backlog exists in the transmission of the cells. The shaping rate can be dynamically varied. Sequence of cells forming a frame is buffered in the ATM switch until the end of frame cell is received. All of the cells of a frame are then sent in quick succession. This is different and wholly unique from the bandwidth allocation technique that adaptively adjusts the number of buckets dependent upon the number of active dataflows of the claimed invention.

Garcia teaches methods for maintaining a small bounded aggregate state within network routers pertaining to selected architectural families. Small bounded reservations states are utilized wherein the method is fully scalable for use on large networks. The size of the aggregate state and the complexity of the associated refresh mechanism are determined by the parameters of the network, such as size, and classes, which is in contrast to states based on the number of end-user flows. The method can render deterministic bandwidth use within the network wherein real-time multimedia applications may be accorded strict delay and bandwidth guarantees. The

invention provides a middle-ground between the stateful Intserv and the stateless SCORE architectures. This is different and wholly unique from the bandwidth allocation technique that adaptively adjusts the number of buckets dependent upon the number of active dataflows of the claimed invention.

Second, there are significant elements of the claimed invention, which are neither taught nor suggested in Amaral, Bonomi, Garcia, or in the purported teaching given in Official Notice alone or in combination with one another. For example, as the Office Action admits Amaral does not teach or suggest (1) adaptively adjusting the number of buckets; or (2) dropping one or more received packets of a dataflow when the bucket corresponding to the dataflow has insufficient tokens for queueing of the one or more packets, and that neither Amaral nor Bonomi teach (1) adding or deleting a bucket or aggregating and treating two or more dataflows as a single dataflow; or (2) that one or more of the dataflows comprise hierarchical dataflows with each level of an hierarchical dataflow being treated as a single dataflow; or (3) that the total number of tokens is conserved; or (4) that the rate of transmission of the packets across the limited bandwidth link is unaffected by the application of the method, system, or computer program product for allocating bandwidth of a limited bandwidth link to dataflows comprising packets; or (5) the number of tokens being dependent upon the size of a packet.

Furthermore, neither Amaral, Bonomi, nor Garcia teach "wherein each bucket comprises a height proportional to weights of respective incoming dataflows, wherein said height of each bucket determines a maximum size of bursts of dataflows that can be accommodated by said buckets, and wherein a rate at which said tokens are allocated to said buckets is proportional to said weights of respective incoming dataflows such that a cumulative rate of all allocation rates equals a fixed transmission capacity of said bandwidth link" as provided in amended independent

claims 1, 13, and 25. In fact, Amaral teaches away from the claimed invention, whereby in col. 5, lines 45-55 of Amaral, it is described that the capacity of the token bucket is programmable up to a maximum of 16. Conversely, in the claimed invention there is no such limitation given. Furthermore, Amaral says nothing about the relationship between the height of a bucket and the weight of the incoming dataflows or the token allocation rate being dependent on the weight of the incoming dataflows. Likewise, Bonomi and Garcia are bereft of any similar language or suggestion of these features.

Third, the level of one of ordinary skill in the art is that of an engineer who works in communication network system design. Thus, such an individual would not find the claimed invention obvious in light of Amaral, Bonomi, Garcia, or the purported teachings given in Official Notice. Fourth, the highly complex manipulation of intricate engineering formulations as well as the complex simulations provided in the specification and given in the drawings are indications that the claimed invention is not obvious in light of Amaral, Bonomi, Garcia, or the purported teachings given in Official Notice

Thus, the claimed invention, as amended, meets the above-cited tests for obviousness by including embodiments such as each bucket comprising a height proportional to weights of respective incoming dataflows, wherein the height of each bucket determines a maximum size of bursts of dataflows that can be accommodated by the buckets, and wherein a rate at which the tokens are allocated to the buckets is proportional to the weights of respective incoming dataflows such that a cumulative rate of all allocation rates equals a fixed transmission capacity of the bandwidth link. As such, all of the claims of this application are, therefore, clearly in condition for allowance, and it is respectfully requested that the Examiner pass these claims to allowance and issue.

As declared by the Federal Circuit:

> In proceedings before the U.S. Patent and Trademark Office, the Examiner bears the burden of establishing a prima facie case of obviousness based upon the prior art. The Examiner can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. In re Fritch, 23 U.S.P.Q.2d 1780, 1783 (Fed. Cir. 1992) citing In re Fine, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988).

Here, the Examiner has not met the burden of establishing a prima facie case of obviousness. It is clear that Amaral, Bonomi, Garcia, and the purported teachings given in the Official Notice fails to disclose all of the elements of the claims of the claimed invention. The unique elements of the claimed invention are clearly an advance over the prior art.

The Federal Circuit also went on to state:

> The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. . . . Here the Examiner relied upon hindsight to arrive at the determination of obviousness. It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. Fritch at 1784-85, citing In re Gordon, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984).

Here, there is no suggestion that Amaral, Bonomi, Garcia, and the purported teachings given in the Official Notice teaches a structure and method containing all of the limitations of the claimed invention. Nor is there a suggestion in the prior art of modifying the prior art in the manner suggested by the Office Action. Consequently, there is absent the "suggestion" or "objective teaching" that would have to be made before there could be established the legally requisite "prima facie case of obviousness."

The Office Action, through Official Notice, makes several assumptions of the regarding

what is well-known in the art, and how obvious it would be to combine these so-called well-known features with Amaral and Bonomi in order to try and teach the claimed invention. However, there is no description of how these so-called well-known features would be combined and implemented with the teachings of Amaral and Bonomi in order to teach the claimed invention. MPEP §2144.03 provides that an "examiner may take official notice of facts outside of the record which are capable of instant and unquestionable demonstration as being 'well-known' in the art," quoting *In re Ahlert*, 424 F.2d 1088, 165 USPQ 418, 420 (CCPA 1970).

However, Applicants challenge how well-known it is to (1) create an additional bucket for each additional dataflow, wherein a token-carrying capacity of the additional bucket is dependent upon a weighted value for the additional dataflow and the additional bucket is initially filled with tokens, as provided in the claimed invention; (2) delete a bucket when the dataflow corresponding to that bucket becomes inactive, as provided in the claimed invention; (3) distribute the tokens from the deleted bucket amongst one or more of the other remaining buckets, as provided in the claimed invention; (4) aggregate and treat two or more of the dataflows as a single dataflow, as provided in the claimed invention; (5) and having one or more of the dataflows comprise hierarchical dataflows and having each level of an hierarchical dataflow treated as a single dataflow, as provided in the claimed invention.

Therefore, the Applicants respectfully make a demand for evidence which supports the proposition asserted in the Office Action as to the whether the above-identified elements are in fact well-known. MPEP §2144.03 goes onto indicate that "assertions of technical facts in areas of esoteric technology must always be supported by citation of some reference work" and "allegations concerning specific 'knowledge' of the prior art, which might be peculiar to a particular art should also be supported." The Applicants suggest that the claimed invention may

constitute esoteric technology, and as such requires support by citation of some reference work

by the Examiner. Moreover, MPEP §2144.03 further states that "[t]he facts so noticed serve to

'fill the gaps' which might exist in the evidentiary showing and should not comprise the principle

evidence upon which a rejection is based." Applicants suggest that the Office Action has used

the so-called well-known facts as the principle evidence to make its rejection and not merely to

"fill the gaps".

In view of the foregoing, the Applicants respectfully submit that the collective cited prior

art do not teach or suggest the features defined by amended independent claims 1, 13, and 25 and

as such, claims 1, 13, and 25 are patentable over Amaral, Bonomi, Garcia, and the purported

teachings given in the Official Notice. Further, dependent claims 2-12, 14-24, and 26-36 are

similarly patentable over Amaral, Bonomi, Garcia, and the purported teachings given in the

Official Notice, not only by virtue of their dependency from patentable independent claims,

respectively, but also by virtue of the additional features of the invention they define.

Moreover, the Applicants note that all claims are properly supported in the specification

and accompanying drawings, and no new matter is being added. In view of the foregoing, the

Examiner is respectfully requested to reconsider and withdraw the rejections.

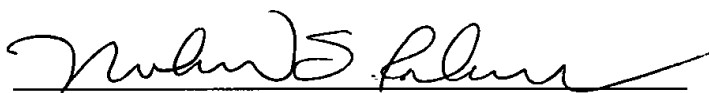## VI.   Formal Matters and Conclusion

The specification and claims have been amended to overcome the rejections/objections

cited in the Office Action. Moreover, substitute drawings are submitted herewith for Figures 7

and 9-16 to overcome the objections to the drawings. In view of the foregoing, the Examiner is

respectfully requested to reconsider and withdraw the rejections to the claims. Applicants submit

that claims 1-36, all the claims presently pending in the application, are patentably distinct from

the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary. Please charge any deficiencies and credit any overpayments to Attorney's Deposit Account Number 09-0441.

Respectfully submitted,

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